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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,133	01/05/2001	Yuji Yagi	MEIC:053A	6471

7590 07/01/2004

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EXAMINER

CHANG, RICK KILTAE

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/754,133

Applicant(s)

OSAKA-SHI ET AL

Examiner

Rick K. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 24-36 is/are pending in the application.
- 4a) Of the above claim(s) 26-28 and 31-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24, 25, 29, 30, 35 and 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Covell, II et al (US 5,718,367).

Covell discloses simultaneously and unitarily forming the protrusions (72) along with the wiring patterns (71).

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Covell, II et al (US 5,718,367) in view of Abe (US 5,746,868).

Covell fails to disclose providing a same conductive sintered material for the wiring patterns and the protrusions.

Abe discloses providing a same conductive sintered material for the wiring patterns and the protrusions (8 and 9).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Covell by providing a same conductive sintered material for the wiring patterns and the protrusions, as taught by Abe, for the purpose of forming uniform thickness interconnection patterns.

5. Claims 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Covell, II et al (US 5,718,367)/Abe (US 5,746,868) as applied to claim 24 above, and further in view of Tsunoi et al (US 6,482,676).

Covell/Abe fail to disclose modifying the protrusions by imposing a load.

Tsunoi discloses modifying the protrusions by imposing a load (Fig. 1B).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Covell/Abe by modifying the protrusions by imposing a load, as taught by Tsunoi, for the purpose of providing substantially equal height protrusions to aid in mounting.

6. Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Covell, II et al (US 5,718,367) in view of Abe (US 5,746,868), and further in view of Tsunoi et al (US 6,482,676).

Covell and Abe disclose as mentioned in Paragraphs 2 and 4-5 above. Covell discloses a semiconductor device (95) inherently having a plurality of connecting locations and electrical pads where the wiring patterns and protrusions are electrically and mechanically connected. Covell's element 90 is an insulating substrate because it insulates element 95.

Tsunoi discloses modifying the protrusions by imposing a load (Fig. 1B).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Covell/Abe by modifying the protrusions by imposing a load, as taught by Tsunoi, for the purpose of providing substantially equal height protrusions to aid in mounting.

### ***Response to Arguments***

7. Applicant's arguments filed 4/7/04 have been fully considered but they are not persuasive.

The unfilled mold 23 is injected with solder into the through-hole 25 starting from the bottom. As the solder is continuously injected into the hole, the solder accumulates from the bottom to form the wiring pattern and continuously accumulates to simultaneously and unitarily form the protrusions (72 which is part of 70). Fig. 4 shows that the opposing ends of 71 extend across a surface of 90, an insulating substrate, to connect at least two locations. The preamble of the claim 24 does not further limits the body of the limitation "simultaneously and unitarily form the protrusions". Further, the disclosure clearly shows that the wiring patterns and protrusions are formed simultaneously and unitarily without the insulating substrate. However, Covell clearly shows 90 as an insulating substrate.

Re claims 35-36, the above rejection never admits that the Covell reference does not teach protrusions having substantially equal heights.

### ***Interviews After Final***

8. Applicant note that an interview after a final rejection must be submitted briefly in writing the intended purpose and content of the interview (the agenda of the interview must be in writing). Upon review of the agenda, the Examiner may grant the interview if the examiner is convinced that disposal or clarification for appeal may be accomplished

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**with only nominal further consideration. Interviews merely to restate arguments of record or to discuss new limitations will be denied. See MPEP 714.13 and 713.09.**

*Conclusion*

9. Please provide reference numerals (either in parentheses next to the claimed limitation or in a table format with one column listing the claimed limitation and another column listing corresponding reference numerals in the remark section of the response to the Office Action) to all the claimed limitations as well as support in the disclosure for better clarity (optional). Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

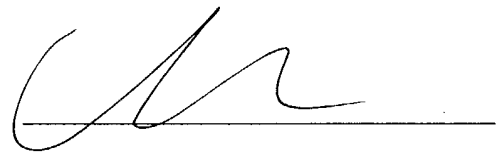
10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (703) 308-4784. The examiner can normally be reached on 5:30 AM to 1:30 PM, Monday through Thursday.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

A handwritten signature in dark ink, consisting of a large, stylized 'C' followed by a series of loops and a final horizontal stroke, positioned above a solid horizontal line.

RICHARD CHANG  
PRIMARY EXAMINER

RC  
June 28, 2004